

Please cancel claim 13, without prejudice to refile.

Please cancel claim 22, without prejudice to refile.

Please cancel claim 30, without prejudice to refile.

F1

2. (Amended) The anti-wear compound of claim 1 wherein the unsaturated synthetic base oil or the unsaturated synthetic dieneophilic base oil is selected from the group consisting of unsaturated C<sub>12</sub>-C<sub>50</sub> alkenes, C<sub>12</sub>-C<sub>50</sub> dienes, naphthenic petroleum base stocks; unsaturated liquid oligomers and polymers, unsaturated polyalphaolefins, unsaturated polyacrylates, unsaturated dehydrated polyol esters; unsaturated C<sub>10</sub>-C<sub>24</sub> branched or straight chain fatty acids; unsaturated fatty esters having a branched or straight chain mono- or polyunsaturated C<sub>10</sub>-C<sub>24</sub> fatty acid esterified to a C<sub>1</sub>-C<sub>24</sub> straight or branched, saturated or unsaturated alcohol; unsaturated fatty glycol esters having a mono- or polyunsaturated C<sub>10</sub>-C<sub>24</sub> branched or straight chain fatty acid esterified to one or more hydroxyl sites of a polyol selected from ethyleneglycol, polyethyleneglycol, propyleneglycol, polypropyleneglycol, polyethoxylated alcohols, trimethylolpropane, pentaerythritol, dimethylolpropane, dipentaerythritol, and trimethylolethane; cyclopentene, cyclopentadiene, cyclohexene, cyclohexadiene, 3-pyrroline; substituted benzene, substituted toluene, substituted xylene, substituted quinone, substituted naphthalene, substituted anthracene, substituted pyrrole, substituted furan, substituted thiophene, substituted pyridine, substituted pyrimidine, substituted imidazole, substituted thiazole; X<sub>1</sub>-ester-linked benzoic acid, X<sub>1</sub>-ester-linked benzyl, X<sub>1</sub>- ester-linked naphthenic, X<sub>1</sub>-ester-linked phenol; a branched or straight chain mono- or polyunsaturated C<sub>10</sub>-C<sub>24</sub> fatty acid; and combinations thereof, wherein the substitution is a mono- or polyunsaturated C<sub>2</sub>-C<sub>25</sub> branched or straight chain alkenyl, wherein X<sub>1</sub>- ester-linked is C<sub>2</sub>-C<sub>24</sub> straight or branched carboxylic acid side chains or a C<sub>1</sub>-C<sub>24</sub> straight or branched, saturated or unsaturated alcohols.

F2

4. (Amended) The anti-wear compound of claim 3 wherein the second moiety is selected from a group consisting of sorbic acid, sorbic anhydride, salicylic acid, salicylic anhydride, C<sub>1-10</sub> alkyl, C<sub>2-10</sub> alkenyl, or C<sub>1-10</sub> alkoxy derivatives of the foregoing acids and anhydrides, and combinations thereof.

F3

10. (Five times Amended) The anti-wear compound of claim 1 wherein the

P3 anti-wear compound is made from the first moiety, second moiety and third moiety compounds selected from the group consisting of respectively in order for each anti-wear compound trimethylol propane trioleate-sorbic acid-sorbitol, trimethylol propane trioleate-sorbitol-sorbate, and trimethylol propane trioleate -sorbic acid-hydroquinone.

P4 12. (Amended) The anti-wear compound of claim 11 wherein the unsaturated synthetic base oil or the unsaturated synthetic dieneophilic base oil is selected from the group consisting of unsaturated  $C_{12}$ - $C_{50}$  alkenes,  $C_{12}$ - $C_{50}$  dienes, naphthenic petroleum base stocks; unsaturated liquid oligomers and polymers, unsaturated polyalphaolefins, unsaturated polyacrylates, unsaturated dehydrated polyol esters; unsaturated  $C_{10}$ - $C_{24}$  branched or straight chain fatty acids; unsaturated fatty esters having a branched or straight chain mono- or polyunsaturated  $C_{10}$ - $C_{24}$  fatty acid esterified to a  $C_1$ - $C_{24}$  straight or branched, saturated or unsaturated alcohol; unsaturated fatty glycol esters having a mono- or polyunsaturated  $C_{10}$ - $C_{24}$  branched or straight chain fatty acid esterified to one or more hydroxyl sites of a polyol selected from ethyleneglycol, polyethyleneglycol, propyleneglycol, polypropyleneglycol, polyethoxylated alcohols, trimethylolpropane, pentaerythritol, dimethylolpropane, dipentaerythritol, and trimethylolethane; cyclopentene, cyclopentadiene, cyclohexene, cyclohexadiene, 3-pyrroline; substituted benzene, substituted toluene, substituted xylene, substituted quinone, substituted naphthalene, substituted anthracene, substituted pyrrole, substituted furan, substituted thiophene, substituted pyridine, substituted pyrimidine, substituted imidazole, substituted thiazole;  $X_1$ -ester-linked benzoic acid,  $X_1$ -ester-linked benzyl,  $X_1$ - ester-linked naphthenic,  $X_1$ -ester-linked phenol; a branched or straight chain mono- or polyunsaturated  $C_{10}$ - $C_{24}$  fatty acid; and combinations thereof, wherein the substitution is a mono- or polyunsaturated  $C_2$ - $C_{25}$  branched or straight chain alkenyl, wherein  $X_1$ - ester-linked is  $C_2$ - $C_{24}$  straight or branched carboxylic acid side chains or a  $C_1$ - $C_{24}$  straight or branched, saturated or unsaturated alcohols.

P5 14. (Twice Amended) The anti-wear compound of claim 13 wherein the second moiety is selected from a group consisting of sorbic acid, sorbic anhydride, salicylic acid, salicylic anhydride,  $C_1$ - $C_{10}$  alkyl,  $C_{2-10}$  alkenyl, or  $C_{1-10}$  alkoxy derivatives of the foregoing acids and anhydrides, and combinations thereof.

FL6

21. (Amended) The anti-wear supplement composition for addition to lubricant formulas of claim 20, wherein the unsaturated synthetic base oil or the unsaturated synthetic dieneophilic base oil is selected from the group consisting of unsaturated  $C_{12}$ - $C_{50}$  alkenes,  $C_{12}$ - $C_{50}$  dienes, naphthenic petroleum base stocks; unsaturated liquid oligomers and polymers, unsaturated polyalphaolefins, unsaturated polyacrylates, unsaturated dehydrated polyol esters; unsaturated  $C_{10}$ - $C_{24}$  branched or straight chain fatty acids; unsaturated fatty esters having a branched or straight chain mono- or polyunsaturated  $C_{10}$ - $C_{24}$  fatty acid esterified to a  $C_1$ - $C_{24}$  straight or branched, saturated or unsaturated alcohol; unsaturated fatty glycol esters having a mono- or polyunsaturated  $C_{10}$ - $C_{24}$  branched or straight chain fatty acid esterified to one or more hydroxyl sites of a polyol selected from ethyleneglycol, polyethyleneglycol, propyleneglycol, polypropyleneglycol, polyethoxylated alcohols, trimethylolpropane, pentaerythritol, dimethylolpropane, dipentaerythritol, and trimethylolethane; cyclopentene, cyclopentadiene, cyclohexene, cyclohexadiene, 3-pyrroline; substituted benzene, substituted toluene, substituted xylene, substituted quinone, substituted naphthalene, substituted anthracene, substituted pyrrole, substituted furan, substituted thiophene, substituted pyridine, substituted pyrimidine, substituted imidazole, substituted thiazole;  $X_1$ -ester-linked benzoic acid,  $X_1$ -ester-linked benzyl,  $X_1$ - ester-linked naphthenic,  $X_1$ -ester-linked phenol; a branched or straight chain mono- or polyunsaturated  $C_{10}$ - $C_{24}$  fatty acid; and combinations thereof, wherein the substitution is a mono- or polyunsaturated  $C_2$ - $C_{25}$  branched or straight chain alkenyl, wherein  $X_1$ - ester-linked is  $C_2$ - $C_{24}$  straight or branched carboxylic acid side chains or a  $C_1$ - $C_{24}$  straight or branched, saturated or unsaturated alcohols.

F7

23. (Twice Amended) The anti-wear compound of claim 22 wherein the second moiety is selected from a group consisting of sorbic acid, sorbic anhydride, salicylic acid, salicylic anhydride,  $C_1$ - $C_{10}$  alkyl,  $C_{2-10}$  alkenyl, or  $C_{1-10}$  alkoxy derivatives of the foregoing acids and anhydrides, and combinations thereof.

F8

29. (Amended) The crankcase oil formulation of claim 28, wherein the unsaturated synthetic base oil or the unsaturated synthetic dieneophilic base oil is selected from the group consisting of unsaturated  $C_{12}$ - $C_{50}$  alkenes,  $C_{12}$ - $C_{50}$  dienes,

F8  
naphthenic petroleum base stocks; unsaturated liquid oligomers and polymers, unsaturated polyalphaolefins, unsaturated polyacrylates, unsaturated dehydrated polyol esters; unsaturated C<sub>10</sub>-C<sub>24</sub> branched or straight chain fatty acids; unsaturated fatty esters having a branched or straight chain mono- or polyunsaturated C<sub>10</sub>-C<sub>24</sub> fatty acid esterified to a C<sub>1</sub>-C<sub>24</sub> straight or branched, saturated or unsaturated alcohol; unsaturated fatty glycol esters having a mono- or polyunsaturated C<sub>10</sub>-C<sub>24</sub> branched or straight chain fatty acid esterified to one or more hydroxyl sites of a polyol selected from ethyleneglycol, polyethyleneglycol, propyleneglycol, polypropyleneglycol, polyethoxylated alcohols, trimethylolpropane, pentaerythritol, dimethylolpropane, dipentaerythritol, and trimethylolethane; cyclopentene, cyclopentadiene, cyclohexene, cyclohexadiene, 3-pyrroline; substituted benzene, substituted toluene, substituted xylene, substituted quinone, substituted naphthalene, substituted anthracene, substituted pyrrole, substituted furan, substituted thiophene, substituted pyridine, substituted pyrimidine, substituted imidazole, substituted thiazole; X<sub>1</sub>-ester-linked benzoic acid, X<sub>1</sub>-ester-linked benzyl, X<sub>1</sub>- ester-linked naphthenic, X<sub>1</sub>-ester-linked phenol; a branched or straight chain mono- or polyunsaturated C<sub>10</sub>-C<sub>24</sub> fatty acid; and combinations thereof, wherein the substitution is a mono- or polyunsaturated C<sub>2</sub>-C<sub>25</sub> branched or straight chain alkenyl, wherein X<sub>1</sub>- ester-linked is C<sub>2</sub>-C<sub>24</sub> straight or branched carboxylic acid side chains or a C<sub>1</sub>-C<sub>24</sub> straight or branched, saturated or unsaturated alcohols.

F9  
31. (Twice Amended) The crankcase oil formulatin of claim 28 wherein the second moiety is selected from a group consisting of sorbic acid, sorbic anhydride, salicylic acid, salicylic anhydride, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2-10</sub> alkenyl, or C<sub>1-10</sub> alkoxy derivatives of the foregoing acids and anhydrides, and combinations thereof.

F10  
36. (Amended) An anti-wear compound comprising:  
reacting a first moiety with a second moiety in a molar ration of from about 1:2 to about 2:1 at a temperature of from about 22°C to about 320°C under an inert atmosphere to form an intermediate adduct;  
esterfying the intermediate adduct with a third moiety in a molar ratio of from about 1:2 to about 2:1 wherein the first moiety is an unsaturated synthetic base oil or an